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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,986	02/14/2002	Klaus H. Oehr	2296-100	4971

7590 06/20/2003

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EXAMINER

VANOY, TIMOTHY C

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,986

Applicant(s)

OEHR

Examiner

VANOY

Group Art Unit

1754

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-18 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-18 is/are rejected.
- ☒ Claim(s) 16 AND 18 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 2, 3, 4
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed on 02/14/02 as paper no. 3 does not fully comply with the requirements of 37 CFR 1.98 because the literature reference by Dean has not been provided, nor has the Merck Index reference. Additionally, these references need to be provided with the page numbers. Since the submission appears to be *bona fide*, the applicant is given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

Specification

- a) The abstract is objected to because it does not give any examples of the "thermolabile molecular halogen precursor".

Claim Objections

- a) Claim 16 is objected to because it has two periods at the end of the claim language.
- b) Claim 18 is objected to because the recited intended use of the product does not further limit the claimed process for removing mercury from the gas.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan patent document no. 63-100,918 A in view of the article titled "Mercury transformations in coal combustion flue gas" by Galbraith et al.

The English abstract of JP-918 describes a method for removing mercury out of the exhaust gas emitted from an incinerator which is also contaminated with sulfur dioxide by passing the mercury and sulfur dioxide-contaminated exhaust gas through a wet scrubber which sprays an aqueous solution of calcium hypochlorite into

Art Unit: 1754

the exhaust gas so that the calcium hypochlorite reacts with and removes the mercury according to:

$$\text{ClO}^- + \text{Hg} + \text{H}_2\text{O} \leftrightarrow \text{Hg}^{2+} + \text{Cl}^- + \text{OH}^-$$
 (please see pg. 2 in the text of JP-918).

The difference between the applicants' claims and JP-918 is that the applicants' independent claims calls for the provision of an alkaline solids in the exhaust gas (such as alkaline coal fly ash particles: please see claim 8).

The first and second full paragraphs on pg. 290 in the Galbraith et al. reports that Hg^{2+}X gas emissions (liberated from a coal fired boiler) can be sorbed onto the fly ash particle surfaces.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process described in JP-918 *by providing* coal fly ash particles into the exhaust gas of JP-918, in the manner required by the applicants' claims, *because* of the taught advantage of the coal fly ash to sorb the gaseous Hg^{2+}X gaseous emissions generated from the calcium chlorite mercury removal process described in JP-918, as set forth in the first and second paragraphs on pg. 280 in the Galbraith et al. article, that would have otherwise escaped into the atmosphere.

The limitations set forth in the applicants' dependent claims calling for passing the resulting flue gas containing solids through either a baghouse, fabric filter or electrostatic precipitator are noted, but are submitted to be obvious because of the

Art Unit: 1754

expected advantage of removing solids out of the flue gas that would have otherwise polluted the atmosphere.

The limitation of the applicants' dependent claim 16 calling for passing the flue gas through a flue gas desulfurization system containing a liquid is noted, but is submitted to be obvious because of the expected advantage of removing the sulfur dioxide alluded to on pg. 4 in JP-918 out of the flue gas of JP-918

The limitation of applicant's dependent claim 18 describing the intended use of the mercuric halide containing solids are noted, but do not further limit the claimed process for treating a flue gas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

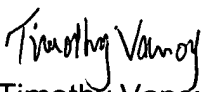
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Application/Control Number: 10/073,986
Art Unit: 1754

Page 6

Timothy Vanoy/tv
June 13, 2003


Timothy Vanoy
Patent Examiner

Art Unit 1754